

5 **CYANOCOBALAMIN LOW VISCOSITY AQUEOUS FORMULATIONS FOR
INTRANASAL DELIVERY**

Abstract of the Disclosure

A stable pharmaceutical mercury-free aqueous solution of cyanocobalamin
10 comprised of cyanocobalamin and water wherein said solution of cyanocobalamin is
suitable for intranasal administration, has a viscosity less than about 1000 cPs, and
wherein said solution of cyanocobalamin has a bioavailability of cyanocobalamin when
administered intranasally of at least about 7% relative to an intramuscular injection of
cyanocobalamin with the proviso that the solution is essentially free of mercury and
15 mercury-containing compounds. The present invention is also directed towards a method
for elevating the vitamin B12 levels in the cerebral spinal fluid (CSF) comprising
administering intranasally a sufficient amount of a mercury-free cyanocobalamin solution
so as to increase the average ratio of vitamin B12 in the CSF to that in the blood serum
(B12 CSF/B12 Serum x 100) to at least about 1.1 comprising intranasally administering
20 an aqueous solution of a cyanocobalamin, wherein said solution of cyanocobalamin has a
bioavailability of at least 7% relative to an intramuscular injection of a cyanocobalamin.